

Listing of Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

1.- 88. (Canceled)

89. (New) A method for controlling flow in a fuel cell, comprising:
producing electrical energy in the fuel cell; and
actuating a thermally-sensitive actuator based on a temperature of the fuel cell for controlling a flow.

90. (New) The method according to claim 89, wherein said thermally-sensitive actuator increases or decreases said flow.

91. (New) The method according to claim 89, wherein said flow comprises a flow of fuel to the fuel cell or a flow of water to the fuel cell.

92. (New) The method according to claim 89, wherein said actuator comprises a shape memory material, alloy and/or a bimetal material.

93. (New) The method according to claim 92, wherein said bimetal material comprises a nickel and/or titanium alloy.

94. (New) The method according to claim 89, wherein said thermally-sensitive actuator is actuated in response to heat generated by the fuel cell.

95. (New) A method for controlling a flow in a fuel cell, comprising:
producing electrical energy in said fuel cell;
providing a flow of a fluid to a fuel mixture of said fuel cell in response to said production of electrical energy; and

expanding a first material in response to a fuel concentration of said fuel mixture, wherein expansion of said first material controls said flow.

96. (New) The method according to claim 95, wherein said flow comprises a flow of water or a flow of fuel.

97. (New) The method according to claim 95, wherein said first material comprises Nafion.

98. (New) The method according to claim 95, wherein said expansion of said first material increases or decreases said flow.

99. (New) A method for determining a concentration of fuel in a fuel cell comprising:

providing a dimensionally variable first material capable of expansion and contraction in relation to a concentration of fuel in a fuel cell, wherein a conductor is disposed on or within the first material;

flowing an electrical current through said conductor;

measuring an electrical property of said conductor, wherein as fuel concentration changes, the first material expands resulting in a proportionate change to the electrical property of said conductor.

100. (New) The method according to claim 99, wherein the electrical property comprises at least one of resistance, impedance, and conductance.